

third logic configured to use a polyphase interpolator to produce the first and second estimates;

fourth logic configured to interpolate the first and second estimates to produce interpolated digital samples having a second local sample rate that is synchronized with the network clock, the second logic configured to interpolate comprising:

fifth logic configured to use a linear interpolator to produce the interpolated digital samples;

sixth logic configured to equalize the interpolated digital samples to produce equalized digital samples; and

seventh logic configured to decode the equalized digital samples to generate detected symbols therefrom.

21. (Amended) A computer program product as recited in Claim 20, wherein the sixth logic configured to equalize comprises:

eighth logic configured to use an adaptively fractionally spaced decision feedback equalizer that has tap spacing given by  $pT/q$  where  $T$  is a modulation interval associated with the network sampling rate and  $p$  and  $q$  are integers to produce the equalized digital samples.

22. (Amended) A computer program product as recited in Claim 20, further comprising:

eighth logic configured to maintain the synchronization between the second local sampling rate and the network clock via a sampling index signal.

24. (Amended) A computer program product as recited in Claim 20, wherein the receiver further includes an echo canceller coupling a transmitter to the receiver, further comprising:

eighth logic configured to receive at an input of the echo canceller transmit symbols from the transmitter that have a third local sample rate that is synchronized with the local clock; and

ninth logic configured to generate at an output of the echo canceller echo cancellation

samples at the first local sample rate in synchronization with the local clock.

25. (Amended) A computer program product as recited in Claim 20, further comprising:

eighth logic configured to identify a signaling alphabet, the seventh logic configured to decode being responsive to the logic configured to identify.

26. (Amended) A computer program product as recited in Claim 25, wherein the eighth logic configured to identify comprises:

ninth logic configured to establish a plurality of alphabet thresholds corresponding to valid data symbols;

tenth logic configured to compute an average value for the equalized digital samples corresponding to a particular alphabet threshold; and

eleventh logic configured to update the particular alphabet threshold with the average value.

30. (Amended) A computer program product for demodulating, in a receiver, a data signal transmitted from a digital source at a network sampling rate that is synchronized with a network clock, comprising:

a computer readable storage medium having computer readable code means embodied therein, the computer readable code means comprising:

first logic configured to sample the data signal to produce digital samples at a first local sample rate that is synchronized with a local clock;

second logic configured to interpolate the digital samples to produce first and second estimates for each of the digital samples;

third logic configured to interpolate the first and second estimates to produce interpolated digital samples having a second local sample rate that is synchronized with the network clock;

fourth logic configured to equalize the interpolated digital samples to produce equalized digital samples;

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Filed: March 8, 1999  
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fifth logic configured to decode the equalized digital samples to generate detected symbols therefrom;

sixth logic configured to identify a signaling alphabet, the fifth logic configured to decode being responsive to the logic configured to identify, the sixth logic configured to identify comprising:

seventh logic configured to establish a plurality of alphabet thresholds corresponding to valid data symbols;

eighth logic configured to compute an average value for the equalized digital samples corresponding to a particular alphabet threshold; and

ninth logic configured to update the particular alphabet threshold with the average value.